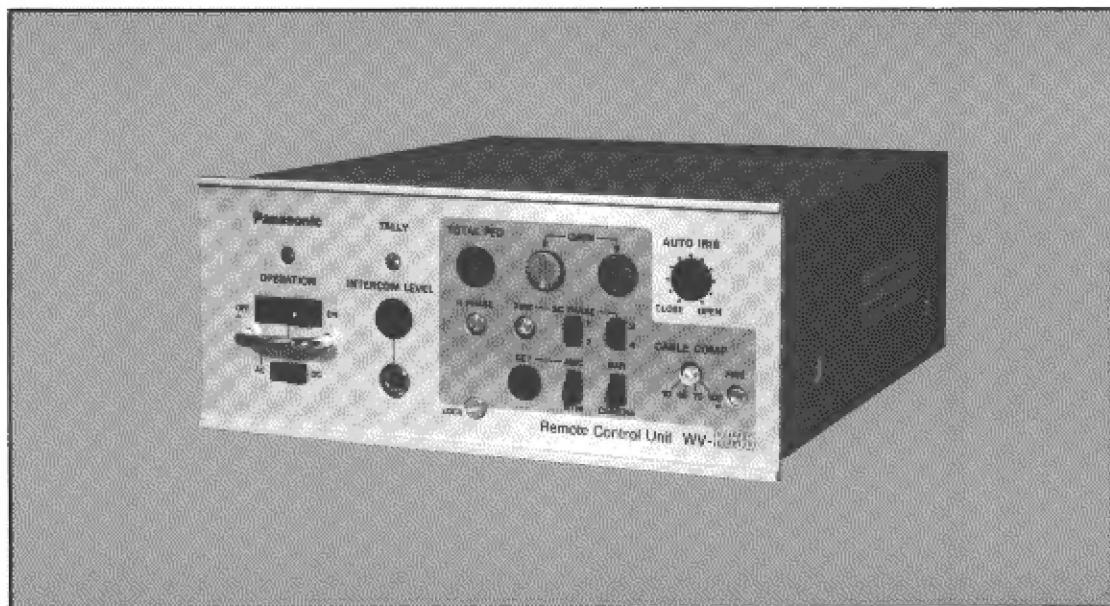


# Operating Instructions

## Remote Control Unit WV-RC35

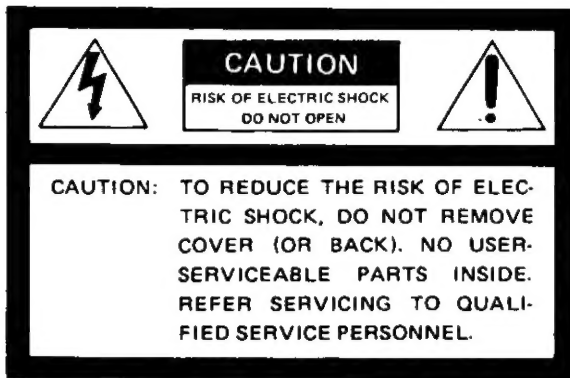


# Panasonic®

Before attempting to connect or operate this product, please read these instructions completely.

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The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## Warning :

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules.

If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.

The serial number of this product may be found on the bottom of the unit.

You should note the serial number of this unit in the space provided and retain this instructions as a permanent record of your purchase to aid identification in the event of theft.

Model No. WV-RC35

Serial No. \_\_\_\_\_

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

## PREFACE

A remote control unit (RCU) WV-RC35 is used to remotely control the WV-D5000 or WV-3260/8AF color camera system in studio. Features and functions include white balance setting, iris control, R/B gain control, total pedestal control, color bar/camera selection switch, horizontal and subcarrier phase adjustment for gen-lock and intercom level control.

**Note :** A RCU adaptor WV-AD37 is required to remotely control the WV-D5000 or WV-3260/8AF color camera system by the RCU.

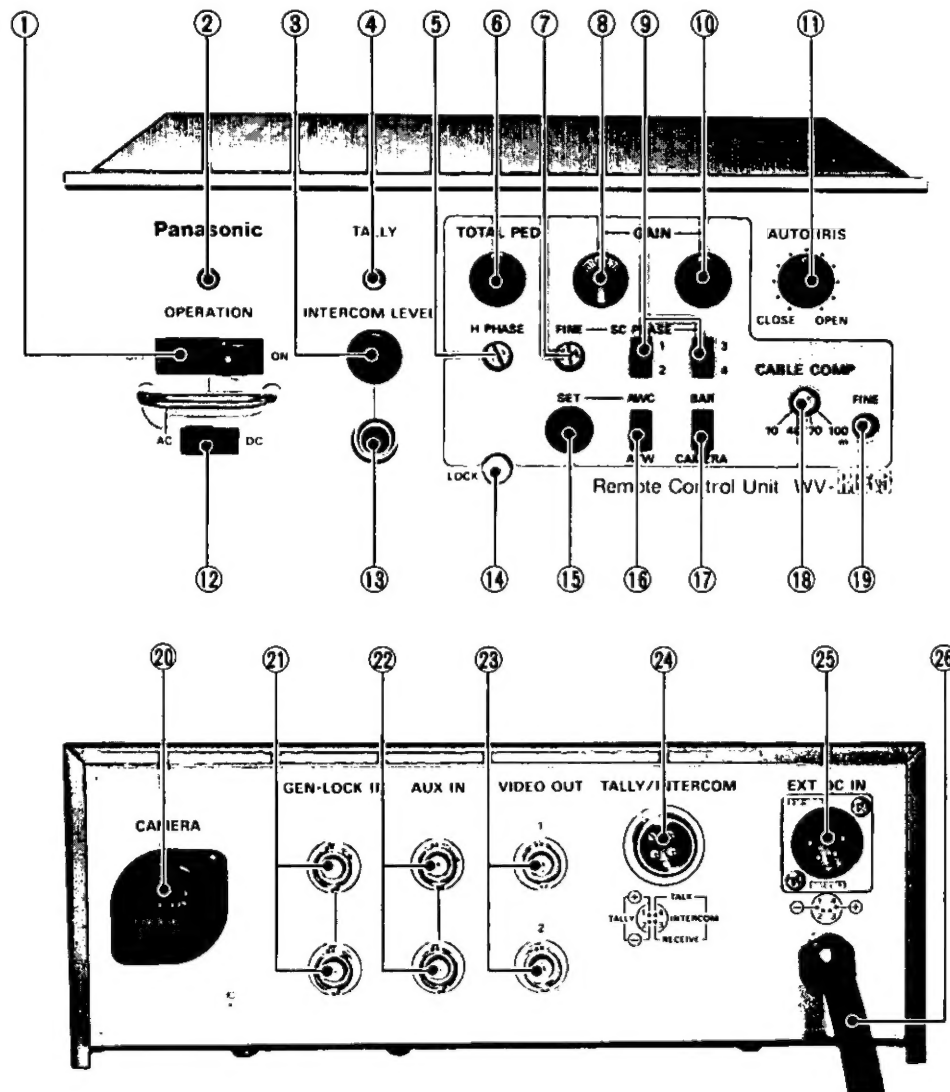
## FEATURES

1. With cable length compensation switch and fine control, 14-pin studio cable between the camera and RCU can be extended to maximum 100m (approximately 300ft).
2. With white balance selection switch, the white balance can be set by auto tracing white-balance (ATW) or auto white setting.
3. Color adjustment can be made by R and B gain controls on the RCU.
4. With lens iris control, the auto iris level of zoom lens on the camera can be manually controlled from the RCU.
5. Horizontal and subcarrier phase controls on the RCU can adjust for matching the phase of the gen-lock signal for the system use.
6. 19" EIA rack mountable with the optional rack mount WJ-A01.

## PRECAUTIONS

- o Do not attempt to disassemble the unit.  
There are no user-serviceable parts inside.  
Do refer any servicing to qualified service personnel.
- o Do not abuse the unit. Avoid striking, shading etc.
- o Do not use strong or abrasive detergents when cleaning the unit. Do use dry cloth to clean the unit when dirty. In case the dirt is hard to remove, use mild detergent and wipe gently.
- o Do not expose the unit to rain or moisture. Do take immediate action if ever the unit do become wet. Turn power off and refer servicing to qualified service personnel. Moisture can damage the unit and also create the danger of electric shock.
- o Use the unit under the conditions where temperature is within 32°F - 104°F (0°C - +40°C) and humidity is less than 90%.

# MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



**1 Operation Switch (Operation ON/OFF)**  
This switch activates power for the RCU.

**2 Power Indicator**  
This indicator lights up whenever the unit is operated.

**3 Intercom Level Control (INTERCOM LEVEL)**  
Turn this control to obtain optimum sound level for the headset connected to the Intercom Jack (13).

**4 Tally Indicator (TALLY)**  
When RCU is used in conjunction with a special effects generator, the tally indicators on the viewfinder and RCU inform to the camera operator, RCU operator and others concerned that the camera system is actually recording the scene.

**5 Horizontal Phase Control for Gen-lock (H PHASE)**  
The horizontal phase of the camera signal is adjusted to match the horizontal phase of the signal at the Gen-lock Input Connector (21).

**6 Total Pedestal Control (TOTAL PED)**  
This control can adjust the pedestal level of the video signal (luminance). Turn this control clockwise (or counterclockwise) to increase (or decrease) the pedestal level. It is factory-set to the center detent position.









**7 Subcarrier phase Fine Control for Gen-lock (SC PHASE FINE)**  
This control allows fine adjustment of the subcarrier phase set by the Subcarrier Phase Coarse Switch (9). It gives continuous control of up to plus 90° subcarrier phase to match the phase of the burst signal at the Gen-lock Input Connector (21).

### 8 Red Gain Control (R GAIN)

The white balance of the camera can be fine-adjusted by this control and the Blue Gain Control (10). It is factory-set to the center detent position.

### 9 Subcarrier Phase Coarse Switch for Gen-lock (SC PHASE COARSE)

The subcarrier phase of the camera signal is adjusted from 0° to 360° in 90° steps with this switch for matching the phase of the burst signal at the Gen-lock Input Connector (21).

SC Phase	0°		90°	
Position of Switches				
SC Phase	180°		270°	
Position of switches				

### 10 Blue Gain Control (B GAIN)

The white balance of the camera can be find-adjusted by this control and the Red Gain Control (8). It is factory-set to the center detent position.

### 11 Auto Iris Control (AUTO IRIS, CLOSE-OPEN)

This can manually adjusts the lens iris opening to compensate for unusual lighting conditions. When the object is in bright light and the background is dark, adjust this knob to close the lens iris opening. When the background is bright and the object appears to be too dark, adjust this knob to open the lens iris opening.

At the center detent position, the auto iris is operated in standard condition.

### 12 AC/DC Selection Switch (AC/DC)

This switch selects the AC or DC power source for the RCU.

### 13 Intercom Jack (INTERCOM)

This is used for communication between camera operator and RCU operator in system operation with special effects generator.

### 14 Lock Screw (LOCK)

When the RCU is mounted onto the Rack Mount Frame WJ-A01, turn this screw to lock the RCU firmly on the frame.

### 15 White Set Button (SET)

The white balance of camera can be set by pressing this button while aiming the camera at the white object such as white wall or paper when the White Balance Selection Switch (16) is set to the AWC position.

The white balance setting will be necessary when the WHITE indicator is blinking on the viewfinder under the following situations as;

- o When the camera is turned ON at AWC position of White Balance Selection Switch (16).
- o When the White Balance Selection Switch (16) is changed from the ATW to the AWC position.

Aim the camera at the white object such as white wall or paper and press this button momentarily to automatically activate the white balance setting. After approximately 2 seconds, the white balance setting is completed and the blinking WHITE indicator on the viewfinder will disappear.

**Note :** The white balance may not be properly balanced under low illuminations when the EVF of the camera displays the blinking LIGHT indicator.

### 16 White Balance Selection Switch (ATW/AWC)

This switch selects white balance mode as follows;

**ATW :** The white balance of camera is automatically set by detecting the characteristic/color temperature of light source with the ATW (automatic tracing white-balance) sensor on the camera and controls the gain of red and blue signal even if the characteristic/color temperature changes.

**AWC :** The white balance of camera can be set automatically by pressing the White Set Button (15) while aiming the camera at the white object such as white wall or paper.

- Note :**
1. It is recommended to use the ATW position if quick setting up is required or the characteristic/color temperature of light would vary during shooting.
  2. It is recommended to use the AWC position if the characteristic/color temperature of scene does not vary.

### 17 Color Bar/Camera Selection Switch (BAR/CAMERA)

When used in a system, this switch can select the camera mode or color bar mode regardless of the Selection Switch on the RCU adaptor.

**BAR :** The full field color bar (75% amplitude, 77IRE white) is provided from the Video Output Connectors (23) on the RCU.

**CAMERA :** The system is in operating condition after necessary adjustments.

#### 18 Cable Length Compensation Switch (CABLE COMP)

This switch is used for the cable length compensation of the 14-pin RCU cable between the camera and the RCU as follows;

10m : Cable length less than 10m (30ft)

40m : Cable length 10 - 40m (30 - 120ft)

70m : Cable length 40 - 70m (120 - 210 ft)

100m : Cable length 70 - 100m (210 - 300 ft)

#### 19 Cable Length Fine Compensation Control (CABLE COMP FINE)

This control allows fine adjustment of the chroma signal level for the cable length compensation. Adjust this control after setting the Cable Length Compensation Switch (18).

#### 20 14-Pin Camera Connector (CAMERA)

14-pin studio cable is connected between the RCU adaptor on the camera and RCU in the system operation.

#### 21 Gen-lock Input Connector (BNC) (GEN-LOCK IN)

These connectors are used to supply the gen-lock signal (black burst or composite signal) from the system reference.

Two connectors are provided for bridging or looping through applications.

When the gen-lock signal is connected to either one of these connectors, the gen-lock signal is automatically terminated with 75 ohms.

If two BNC connectors are connected for bridging or looping through the gen-lock signal, the gen-lock signal is not terminated with 75 ohms.

#### 22 Auxiliary Input Connector (BNC) (AUX IN)

These connectors are used to supply the lineview signal from the special effects generator. Two connectors are provided for bridging or looping through applications.

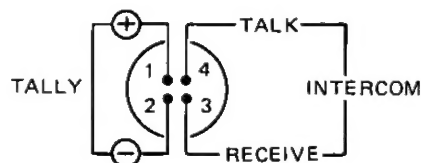
When the lineview signal is connected to either one of these connectors, the signal is automatically terminated with 75 ohms. If two BNC connectors are connected for bridging or looping through the lineview signal, the lineview signal is not terminated.

#### 23 Video Output Connector (BNC) (VIDEO OUT)

These connectors are used to provide the composite video output signal to the special effects generator, the video monitor or VTR.

#### 24 Tally and Intercom Input Connector (TALLY & INTERCOM)

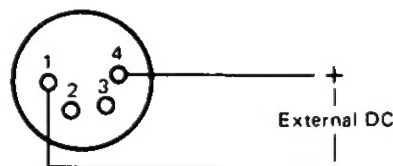
The 4-pin cable is connected between this connector and the tally & intercom output of the special effects generator.



#### 25 4-Pin External DC Input Connector (EXT DC)

This connector is used for connecting a cable from an external DC power source (a car battery for example). Maximum voltage that can be supplied is 20V DC.

Cable Length	DC Power Source
10m (30ft)	12V - 20V, more than 1.85A
40m (120ft)	13V - 20V, more than 1.85A
70m (210ft)	14V - 20V, more than 1.85A
100m (300ft)	15V - 20V, more than 1.85A



**CAUTION :** Use with a DC power supply marked Class 2.

Do not use with an external storage battery unless provided with a fuse rated at 8 amps or less and located within 5 inches of the battery connecting means.

#### 26 AC Power Cord

# CONNECTION

- o Mount the RCU adaptor WV-AD37 on the camera. Refer to the operating instructions of the RCU adaptor.
- o Connect the 14-pin studio cable between the RCU adaptor on the camera and the RCU.
- o Connect the coaxial cables between the Video Output Connector (23) on the RCU and the Video Input Connector of the special effects generator.
- o Connect the coaxial cables between the Black Burst Output connector of the special effects generator and the Gen-Lock Input Connector (21) of the RCU (which may be bridged or looped through to another RCU).
- o Connect the coaxial cables between the Preview/Lineview Output Connector of the special effects generator and the Auxiliary Input Connector (22) of the RCU (which may be bridged or looped through to another RCU).
- o Connect the 4-pin cable between the Tally and Intercom Connectors on the RCU (24) and the special effects generator.
- o In case of the DC power operation, supply the following DC power to the 4-pin External DC Input Connector (25) of the RCU.

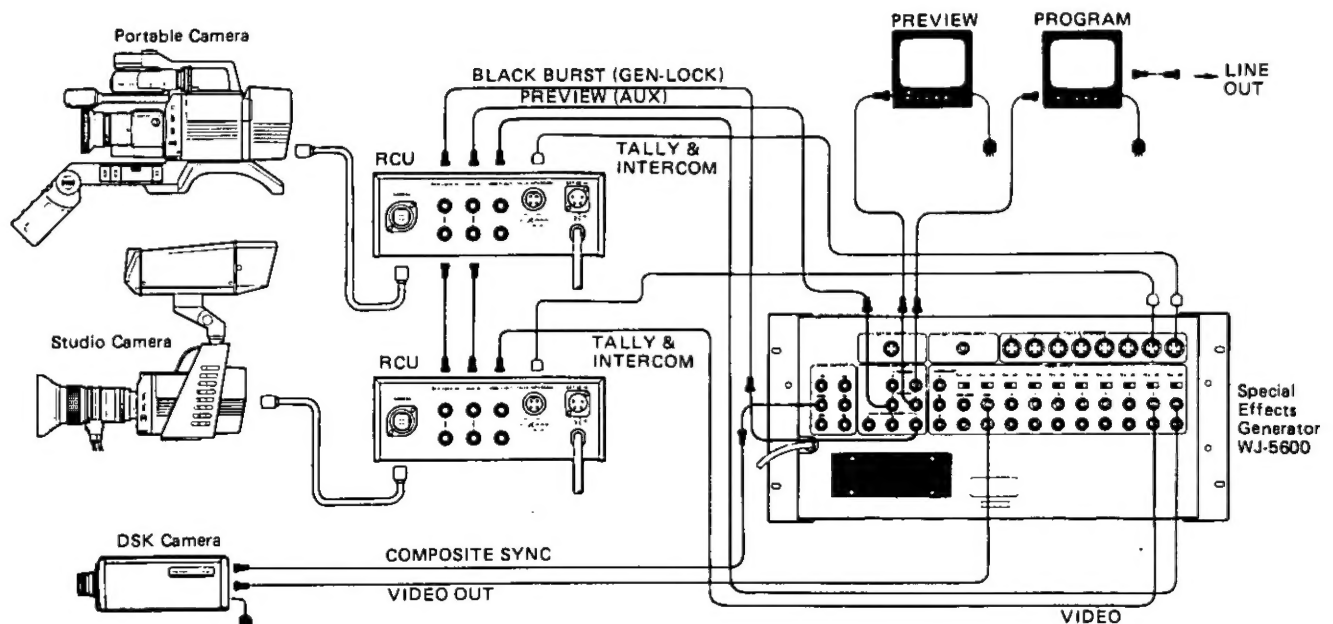
## Cable Length

10m (30ft)  
40m (120ft)  
70m (210ft)  
100m (300ft)

## DC Power Source

12V - 20V, more than 1.85A  
13V - 20V, more than 1.85A  
14V - 20V, more than 1.85A  
15V - 20V, more than 1.85A

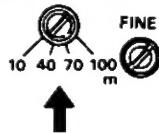
- Note :**
- 1 When the BNC connector is connected to either one of the Gen-Lock Input Connector (21) and the Auxiliary Input Connector (22) of the RCU, the gen-lock signal and the preview/lineview signal are automatically terminated with 75 ohms. If two BNC connectors are connected for bridging or looping through the signals, they are not terminated with 75 ohms.
  2. The 14-pin studio cable can be extended for maximum distance of 100m (approximately 300ft).
  3. Set the VTR Compatibility Switch (RUN  $\oplus/\ominus$ ) on the camera to the  $\oplus$  position when using the RCU.
  4. Refer to the operating instructions of the special effects generator and the RCU adaptor.



# OPERATING PROCEDURE

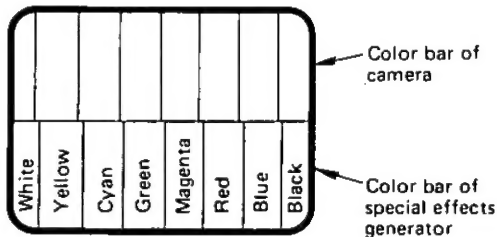
1. Make all the required connections.
2. Set the switches on the camera correctly as;  
 Standby Switch (STANDBY/ON) ---- ON position  
 DC Power Selection Switch (DC POWER EXT/VTR) ---- EXT position  
 VTR Compatibility Switch (RUN  $\oplus/\ominus$ ) ----  $\oplus$  position  
 Iris Selection/Manual Control Knob on the lens  
 ..... Auto (push) position  
 Auto Iris Control ..... Center detent position
3. Set the DC Power Selection Switch (DC POWER) on the RCU adaptor to the RCU position.
4. Turn ON the power switch of all the units.
5. Set the Color Bar/Camera Selection Switch (17) on the RCU to the BAR position.
6. Set the Cable Length Compensation Switch (18) on the RCU according to the length of cable used.  
**Note :** Standard cable length is 10m (30ft).

## CABLE COMP

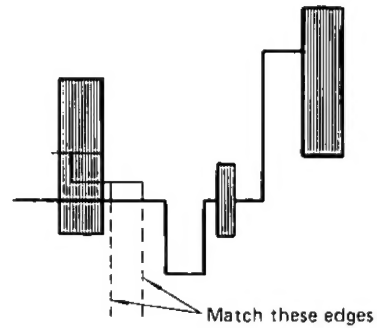
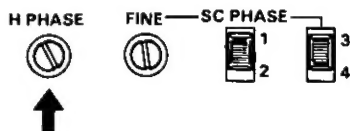


**Note :** The Cable Length Fine Compensation Control (19) is adjusted later.

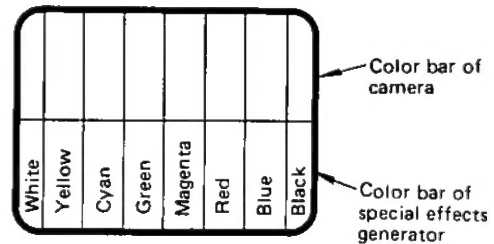
7. Adjust the horizontal phase of camera as follows.
  - o Set the switches and controls on the special effects generator so that the split picture of color bars is observed on the program output monitor. Refer for the details to the operating instructions of the special effects generator.



- o Connect the oscilloscope to the PROGRAM OUTPUT connector of special effects generator or feed the PROGRAM OUTPUT signal to the waveform monitor. Observe the horizontal blanking period of the PROGRAM OUTPUT signal.
- o Adjust the Horizontal (H) Phase Control (5) on the RCU so that the phase of horizontal blanking of the color bar signal for the camera matches that for the special effects generator.

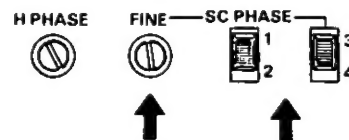


- o The horizontal phase of the camera can be roughly adjusted by observing the split picture on the program output monitor after selecting switches and controls as mentioned previously. Adjust the Horizontal (H) Phase Control (5) on the RCU so that the edges of color bar for the camera and special effects generator roughly match each other.



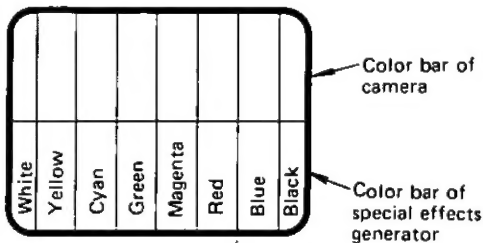
**Note :** The horizontal phase should be readjusted as well as the subcarrier phase explained next if the connection or length of studio and coaxial cable is changed in the system.

8. Adjust the subcarrier phase of camera as follows.
  - o Set the switches and controls on the special effects generator so that the split picture of color bar is observed on the program output monitor.
  - o Adjust the Subcarrier (SC) Phase Coarse Switch (9) and Fine Control (7) on the RCU so that the color of the color bar for the camera is similar to that for special effects generator.

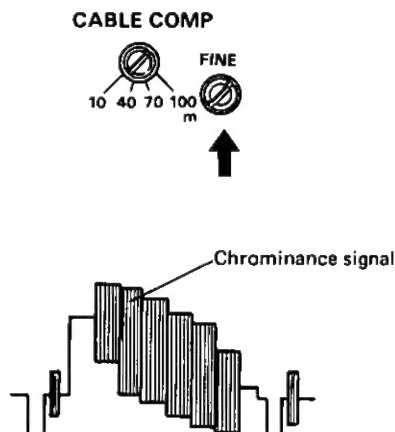




- o Precise adjustment should be done by using the vectorscope. Supply the PROGRAM OUTPUT signal to the vectorscope from the special effects generator. While observing the vectorscope, adjust the Subcarrier Coarse Switch (9) and Fine Control (7) so that the phase of color bar of camera matches that of special effects generator on the vectorscope.
9. Adjust the Cable Length Fine Compensation Control (19) as follows.
- o Set the switches and controls on the special effects generator so that the split picture of color bar is observed on the program output monitor.



- o Connect the oscilloscope to the PROGRAM OUTPUT connector of special effects generator or feed the PROGRAM OUTPUT signal to the waveform monitor.
- o Adjust the Cable Length Fine Compensation Control (19) on the RCU so that the chrominance level of the color bar signal for the camera matches that for the special effects generator.



- o The chrominance level can be roughly adjusted by observing the split picture on the program output monitor after selecting switches and controls as mentioned previously.

Adjust the Cable Length Fine Compensation Control (19) so that the color and contrast of the color bar picture for the camera and the RCU roughly match each other.

**Note :** The Cable Length Compensation Switch (18) and the Cable Length Fine Compensation Control (19) should be readjusted when the length of 14-pin studio cable is changed.

10. Set the Color Bar/Camera Selection Switch (17) on the RCU to the CAMERA position.
11. Set the white balance by the following instructions.
- a. Automatic tracing white-balance (ATW) operation :

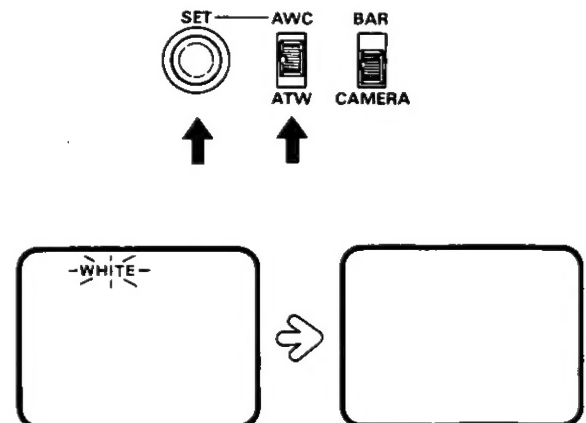
Set the White Balance Selection Switch (16) on the RCU to the ATW position.

The white balance is automatically set by detecting the characteristic/color temperature of light which illuminates the scene.

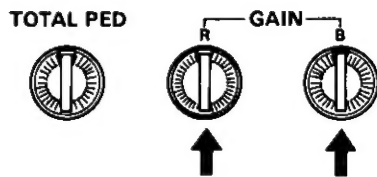
It is recommended to use ATW position if quick setting up is required or the characteristic/color temperature of light would vary during shooting.

- b. Automatic white balance setting :
- Set the White Balance Selection Switch (16) to the AWC position.

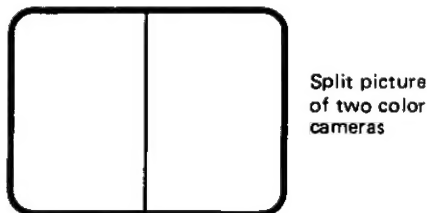
While aiming the camera at the white object such as white paper, press the White Set Button (15) momentarily. The white balance is automatically set. When the white balance is completed, the blinking WHITE indicator disappears from the viewfinder. If the blinking WHITE indicator remains, reset the white balance after confirming the object.



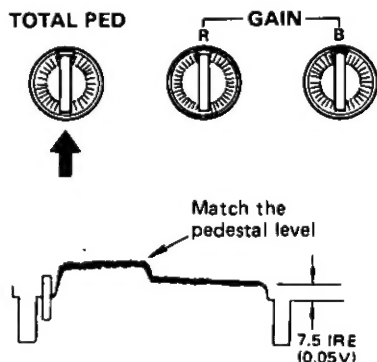
**Note :** The white balance can be fine-adjusted by the Red and Blue Gain Controls in the automatic tracing white-balance (ATW) operation and after setting the white balance.



12. Adjust the total pedestal of camera as follows.
  - o Set the switches and controls on the special effects generator so that the split picture of color cameras is observed on the program output monitor.



- o Connect the oscilloscope to the PROGRAM OUTPUT connector of special effects generator or feed the PROGRAM OUTPUT signal to the waveform monitor.
- o Close the lens iris with the Auto Iris Control (11) and adjust the Total Pedestal Control (6) so that the pedestal level of camera becomes same. The pedestal level should be set to 7.5IRE unit (0.05V).
- o Return the Auto Iris Control (11) to the previous position.



13. Confirm the flangeback adjustment of the lens as follows.
  - o Aim the camera at an object further than 2m (6 feet) from the camera.
  - o Zoom in (close-up/telephoto) and adjust the lens focus with the Focus Ring.

- o Zoom out (wide angle) and confirm that the picture is in focus. If not, adjust the flangeback of the lens by referring to the operating instructions of the WV-D5000 or WV-3260/8AF.

14. Adjust the zoom lens to have the desired picture composition.

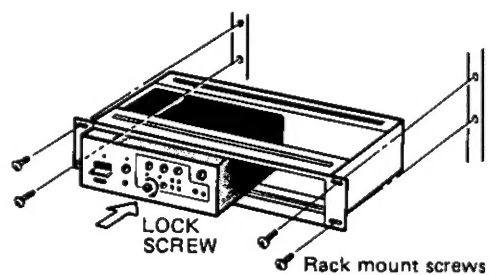
Turn the Focus Ring to get the best focus by watching the picture in the viewfinder.

## RACK MOUNT INFORMATION

The WV-RC35 can be mounted onto the standard 19" EIA rack by using the rack mount frame WJ-A01 (option).

1. Mount the rack mount frame WJ-A01 onto the standard 19" EIA rack with mounting screws.
2. Remove four rubber feet from the RCU and turn the Lock Screw (14) on the RCU fully counterclockwise.
3. Slide the RCU into the rack mount frame and turn the Lock Screw (14) fully clockwise to hold the RCU in place.
4. After mounting the RCU, mount the blank panel onto the rack mount frame to cover the extra mounting space.

**Note :** Two sets of the RCU can be mounted onto the rack mount frame.



# SPECIFICATIONS

Power Source :	120V AC, 60Hz, 43 watts +12V - +20V DC, 1.85A - 1.1A
Power Supply :	12V - 20V DC, 1.75A - 1A for camera
Video Input :	1.0Vp-p NTSC composite/75 ohms (14P camera connector)
Video Output :	1.0Vp-p NTSC composite/75 ohms x 2 (BNC connectors)
Gen-Lock Input :	1.0Vp-p NTSC composite or black burst signal/75 ohms or Hi-Z looping through x 1 (BNC connectors), auto termination
Subcarrier Phase for Gen-Lock :	Adjustable more than 360°
Horizontal phase for Gen-Lock :	Adjustable from -0.1μsec to +1.5μsec
Aux (Line View) Input :	1.0Vp-p NTSC composite/75 ohms or Hi-Z looping through x 1 (BNC connectors), auto termination
Maximum Studio Cable Length :	100m (300ft) with cable compensator
Tally & Intercom :	4 pin connector
Switches :	Operation ON/OFF, AC/DC Selection, Color Bar/Camera Selection, White Balance Selection, White Set, Cable Compensation, Subcarrier Coarse Phase
Controls :	R and B Gain, Total Pedestal, Subcarrier Fine Phase, Horizontal Phase, Intercom Level, Auto Iris Level, Cable Length Fine Compensation
Ambient Operating Temperature :	32°F - 104°F (0°C - +40°C)
Ambient Operating Humidity :	Less than 90%
Dimensions :	8-1/4" (W) x 3-1/2" (H) x 8-7/8" (D) 209(W) x 88(H) x 225(D)mm
Weight :	7.3 lbs (3.3kg)

Weight and dimensions shown are approximate.  
Specifications are subject to change without notice.

# OPTIONAL ACCESSORIES

Color camera	WV-D5000	Studio cable	14C-30 (30ft)
	WV-3260/8AF	Studio extension cable	14C-100 (100ft)
1" viewfinder	WV-VF01	Rack mount frame	WJ-A01
5" viewfinder	WV-VF65	Black panel for rack mount frame	WJ-B01
Mounting angle for 5" viewfinder	WV-Q39		WJ-B02
12X studio lens	WV-LZ15/12		WJ-B03
Lens control kit	WV-LK11		
Special effects generator	WJ-4600C		
	WJ-5600		

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